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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/579,466	05/26/2000	Koichi Sato	P19105	7486

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EXAMINER

GENCO, BRIAN C

ART UNIT	PAPER NUMBER
2615	5

DATE MAILED: 03/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/579,466

Applicant(s)

SATO, KOICHI

Examiner

Brian C Genco

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

Specification

The incorporation of essential material in the specification by reference to a foreign application or patent, or to a publication, namely the incorporation by reference of JPA 11-150544 on page 22 of the specification, is improper. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. See MPEP § 608.01(p); *In re Hawkins*, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); *In re Hawkins*, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); and *In re Hawkins*, 486 F.2d 577, 179 USPQ 167 (CCPA 1973).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-5 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over (USPN 4,679,212 to Hynecek) in view of (USPN 5,339,162 to Tani).

In regards to claim 1 Hynecek discloses an apparatus for driving an imaging device, comprising:

a light receiving element provided with first and second electrodes (e.g., Fig. 17 wherein element 84 of Fig. 17 is the first electrode and element 88 of Fig. 17 is the second electrode); and

a voltage control processor that controls voltage levels of said first and second electrodes during said accumulating period (e.g., the voltage control processor is implicit in the description on column 14, lines 43-54);

said voltage control processor fixing a voltage level of said first electrode and periodically changing a voltage of said second electrode, in accordance with a length of said accumulating period, so that a charge pumping operation is performed (e.g., as disclosed on column 12, lines 12-42, the switching of said second electrode is done in accordance with a length of said accumulating period, namely that the number of times the switching occurs is limited for a given switching frequency based on the accumulating period).

Hynecek does not explicitly disclose nor preclude an accumulating period calculating processor that obtains an accumulating period of an imaging device. Examiner notes that in equation 8 disclosed on column 12, line 20, the exposure time, or accumulating period, is a variable in determining the overload capacity of the imaging device. Examiner further notes that it is extremely well known to perform photometry to determine ambient lighting conditions so as to enable proper setting of an accumulation period for generating a properly exposed image as taught by Tani in column 1, lines 49-54 and as is generally known to one skilled in the art at the

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time of the invention. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have added a photometry and control device to Hynecek's invention in order to determine ambient lighting conditions so as to enable proper setting of an accumulation period for generating a properly exposed image.

In regards to claims 2 and 3 see Fig. 17 and column 5, lines 7-12.

In regards to claim 4 see Examiners notes on the rejection of claim 1. Note that in Fig. 17 the second electrode is toggled.

In regards to claim 5 see Examiners notes on the rejection of claim 1. Note that the Examiner is defining the standard period as the period from the start of the accumulation period to the first switch of said second electrode.

In regards to claim 9 see Examiners notes on the rejections above.

Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over (USPN 4,679,212 to Hynecek) in view of (USPN 5,339,162 to Tani) in further view of (USPN 4,703,442 to Levine).

In regards to claim 6 Examiner notes column 12, lines 12-42. Examiner notes that equation 8 discloses that in a given exposure time period a constant number of full well exposures can be handled at a given second electrode clocking frequency (note Fig. 10; column 9, line 30 – column 10, line 13). Examiner notes that as shown in Fig. 10 the higher the clocking frequency of the second electrode the more full well exposures can be handled. Examiner further notes Fig. 11 and column 10, lines 14-66 wherein it is disclosed that as the temperature increases the number of full well exposures that can be handled decreases. Examiner notes that Hynecek

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does not explicitly disclose that there is a temperature sensor. Examiner notes that Levine discloses using a temperature sensor for allowing proper correction of dark current in accordance with the temperature (column 2, lines 24-34; column 5, lines 32-37; element 40 of Fig. 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have added a temperature sensor to Hynecek's invention in order to allow for proper correction of dark current in accordance with the temperature. Examiner further notes that one skilled in the art would clearly recognize that given the relationships disclosed by Hynecek, in order to handle the same number of full well exposures as the temperatures increases one of ordinary skill in the art at the time of the invention would clearly know to increase the clocking frequency of the second electrode. As such, the standard period as defined above is changed in accordance with the temperature, namely it is decreased as the temperature is increased.

In regards to claim 8 see Examiners notes on the rejection of claim 6. Note that as described in the rejection of claim 6 the period of switching the level of the second electrode is changed in accordance with the temperature, namely decreasing the period for increased temperature.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over (USPN 4,679,212 to Hynecek) in view of (USPN 5,719,625 to Tani) in further view of (Applicants Admitted Prior Art, herein AAPA).

In regards to claim 7 see Examiners notes on the rejections above. Examiner refers applicant again to Fig. 10 and equation 8. Examiner notes that as disclosed in equation 8, as the exposure time increases the number of full well exposures that can be handled increases.

Examiner is defining this relationship as the function $E(t,f)$, wherein E is the number of full well exposures that can be handled, t is the accumulation period, and f is the clocking frequency of the second electrode. Examiner further notes that AAPA disclosed on page 2, lines 6-14 that as the temperature or accumulating period increase the amount of noise increases. Examiner is defining this relationship as the function $N(t,T)$ wherein N is the amount of noise, t is the accumulating period, and T is the temperature. Examiner notes that one skilled in the art at the time of the invention would clearly recognize that upon the function $N(t,T)$ exceeding the function $E(t,f)$ blooming would occur. Due to the direct correlation between the number of full well exposures that can be handled and the clocking frequency of the second electrode illustrated in equation 8, as the number of full well exposures increase the clocking frequency must be increased so as to handle the increased number of full well exposures. As such, based on the relationship shown in Fig. 10 and equation 8 one of ordinary skill in the art would recognize to increase the clocking frequency of the second electrode in order to offset the increased noise.

Examiner notes that since the noise function is dependent on temperature as noted above the same logic could be applied to reject claims 6 and 8 as well, however, in the interest of simplicity this additional rejection will be omitted for now.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian C. Genco who can be reached by phone at 703-305-7881 or by fax at 703-746-8325. The examiner can normally be reached on Monday thru Thursday 7:30am to 4:30 pm and every other Friday 7:30am to 3:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on 703-308-9644. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is 703-308-4357.

Brian C Genco
Examiner
Art Unit 2615

February 23, 2004



ANDREW CHRISTENSEN
SUPERVISORY PATENT EXAMINER
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